

Columbia Forest Products)	Departmental
Aroostook County)	Findings of Fact and Order
Presque Isle, Maine)	Air Emission License
A-353-71-G-A)	Amendment #1

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. Columbia Forest Products of Presque Isle, Maine was issued Air Emission License A-353-71-F-R on July 31, 2000, permitting the operation of emission sources associated with their wood processing facility.
2. Columbia Forest Products has requested an amendment of their air emissions license to reflect the addition of a 600 Hp George K. Moss Co., Inc. wood fired boiler (designated Boiler #3) and a new indirect contact veneer drying kiln (designated Veneer Dryer #3).
3. Columbia Forest Products is requesting to change the wood fuel cap for the facility from 10,000 tons per year facility wide to 33,760 tons per year facility wide. The fuel cap will allow for 8,760 tons per year for the wood fired Veneer Dryer #1, 10,000 tons per year combined for Boilers #1 & #2 and 15,000 tons per year for the new Boiler #3.
4. Columbia Forest Products is also requesting a facility wide #2 fuel oil cap of 1,500,000 gallons per year based on a twelve month rolling total. 1,250,000 may be fired in the new boiler and the remainder fired in Veneer Dryer #1.
5. This license renewal is amended to include emissions from the operation of process equipment that includes the wood fired Veneer Dryer #1 and the indirect drying Veneer Dryer #2.
6. This amendment will reflect the use of updated emission factors for previously licensed equipment.
7. This amendment will include the identification of three existing process cyclones that were not explicitly listed in air emissions license A-353-71-F-R.

B. Emission Equipment

Columbia Forest Products is applying to include the operation of the following equipment to its air emissions license:

Fuel Burning Equipment

<u>Equipment</u>	<u>Maximum Capacity (MMBtu/hr)</u>	<u>Primary Fuel</u>	<u>Maximum Firing Rate (tons/hr)</u>	<u>Secondary Fuel, % Sulfur</u>	<u>Stack #</u>
Boiler #3	24	Wood	1.9	#2 Fuel oil, 0.35%	3

Process Emissions Sources

<u>Equipment</u>	<u>Unit Capacity</u>
Veneer Dryer #3	165 feet per minute
Energex fuel Silo Cyclone #3	Na
Boiler Fuel Cyclones #1 and #2	Na

C. Application Classification

The modification of a minor source is considered a major modification based on whether or not expected emission increases exceed the “Significant Emission Levels” as given in Maine’s Air Regulations. The expected emissions increases from the addition of the new boiler do not exceed the “Significant Emission Levels”, therefore, this modification is determined to be a minor modification and has been processed as such.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in Chapter 100 of the Department regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in Chapter 100 of the Air Regulations. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Boiler #3

Columbia Forest Products has proposed to install a new boiler (Boiler #3) to provide steam to the facility's new dryer and kilns. The boiler, manufactured by George K. Moss Co., Inc., has a maximum design heat output capacity of 600Hp and a maximum design heat input capacity of 24 MMBtu/hr firing wood at a rate of 1.9 tons per hour. The facility has requested a wood fuel cap for Boiler #3 of 15,000 tons of wood per year. The wood fired in the boiler will have a moisture content of approximately 50% and heat value of approximately 4500 Btu per pound.

The new boiler has a heat input capacity greater than 10 MMBtu/hr, therefore, the boiler is subject to EPA's New Source Performance Standards (NSPS) Subpart Dc. The applicable requirements are included in the following:

1. Standard for sulfur dioxide: 60.42c,
2. Emission monitoring for sulfur dioxide: 60.46c,
3. Reporting and record keeping requirements: 60.48c.

In accordance with 40 CFR Part 60.42c, paragraph h. (2), Columbia Forest Products shall demonstrate compliance with SO₂ emissions limits and fuel oil sulfur limits through certification from the fuel oil supplier.

In accordance with 40 CFR Part 60.46c, paragraph e., the SO₂ emission monitoring requirements of 40 CFR Part 60.46 shall not apply to Columbia Forest Products where the facility shall demonstrate compliance with SO₂ standards based on fuel supplier certification as described under 40 CFR Part 60.48, paragraph f. (1).

Columbia Forest Products shall comply with the reporting and record keeping requirements required by 40 CFR Part 60.48c.

The boiler will be equipped with a secondary fuel burner that will be disconnected during periods of wood fire and moved into place when needed to provide supplemental heat during wood start-up or periods when wood fuel is unavailable. The secondary burner will fire #2 fuel oil or kerosene. The boiler has a maximum design heat input capacity of 29.44 MMBtu/hr while firing with the secondary burner. Columbia Forest Products has requested an annual #2 fuel oil cap of 1,250,000 gallons per year for Boiler #3. BACT for #2 fuel fired boilers is the use of #2 fuel oil with a sulfur content no greater than 0.35% sulfur by weight.

The boiler will be equipped with a high efficiency multiclone collector for particulate control. The dust collector has a manufacturer's guarantee to have higher control efficiency than standard conventional multi-tube cyclones. The utilization of the dust collector satisfies the BACT requirement in regards to particulate control.

George K. Moss Co., Inc. guarantees a CO emission rate of 200 parts per million (ppm), which converts to 0.055 pounds per MMBtu (lb/MMBtu). The proposed industrial boiler MACT standard for CO emissions from new solid and liquid fuel fired units is established at 400 ppm @ 3% oxygen, which converts to approximately 0.1 lb/MMBtu. In establishing the CO emissions standard from the new Boiler #3, the Department used the proposed MACT standard for CO emission of 400 ppm.

A summary of the BACT analysis for Boiler #3 is as follows:

1. BACT for emissions of PM is 0.17 lb/MMBtu as guaranteed by the cyclone manufacturer.
2. BACT for emissions of PM₁₀ is 0.10 lb/MMBtu as guaranteed by the cyclone manufacturer.
3. SO₂ emissions limits during periods of oil firing are established by 40 CFR Part 60.43 (Standards for Sulfur Dioxide) at 0.5 lb/MMBtu.
4. SO₂ emissions limits during periods of wood firing only are established using AP-42 emission factors dated 7/01.
5. BACT for sulfur content of the #2 fuel oil fired is a sulfur content no greater than 0.35% sulfur by weight.
6. NO_x and VOC emissions limits were calculated using AP-42 emissions factors dated 9/98 for oil combustion and 7/01 for wood combustion.
7. CO emission rate is guaranteed by the manufacturer to be no greater than 200 ppm (0.055 pounds per MMBtu), however, BACT for emissions of CO is 0.1 lb/MMBtu based on the proposed industrial boiler MACT standard of 400 ppm @ 3% oxygen for CO emissions from new solid and liquid fuel fired units.
8. Visible emissions during periods of oil combustion shall not exceed 20% opacity on a 6-minute block average, except for no more than 2 six-minute block averages in a 3-hour period.
9. Visible emissions during periods of wood combustion or periods of combusting wood and oil in combination, shall not exceed 20% opacity on a 6-minute block average, except for no more than 2 six-minute block averages in a 3-hour period.

C. Energex Combustion Unit (Veneer Dryer #1)

Columbia Forest Product's current license allows for the operation of a direct contact veneer dryer designated Veneer Dryer #1. The dryer was manufactured in 1973 by Proctor Schwartz to burn oil and was later modified in 1986 to also burn wood. Veneer Dryer #1 utilizes the exhaust gases from the combustion of the wood or #2 fuel oil to dry veneer. The Veneer Dryer #1 makes use of an Energex Combustion unit to fire wood at a maximum design heat input capacity of 27 MMBtu/hr firing wood with a 50% moisture content. Veneer Dryer #1 also makes use of three #2 fuel oil firing burner units (designated Heaters #1, #2 and #3) to supply combustion gases to the dryer during periods that wood is not available. The three #2 fuel oil firing burners have maximum design heat input capacities of 5.0 MMBtu/hr each for a total maximum design heat input capacity of 15 MMBtu/hr.

Columbia Forest Products has requested to revise the wood and #2 fuel oil fuel caps for the Veneer Dryer #1. The facility has requested a wood fuel cap for the dryer of 8760 tons of wood per year. The facility has also requested a #2 fuel oil cap of 250,000 gallons per year for the Veneer Dryer #1.

VOC lb/hr emission rate restrictions for the Energex wood combustion unit and the three #2 fuel oil firing units do not include VOC emissions from the drying of hardwood veneer. Columbia Forest Products will be subject to a separate annual VOC emission restriction for the drying of hardwood veneer from the facility's hardwood veneer dryers.

A summary of the BACT analysis for the Energex Combustion Unit and the #2 fuel oil burners (Heaters #1, #2 and #3) is as follows:

1. BACT for emissions of PM is 0.17 lb/MMBtu as guaranteed by the cyclone manufacturer.
2. BACT for emissions of PM₁₀ is 0.10 lb/MMBtu as guaranteed by the cyclone manufacturer.
3. BACT for sulfur content of the #2 fuel oil fired is a sulfur content no greater than 0.35% sulfur by weight.
4. SO₂, NO_x and CO emissions rates are based on AP-42 emission factors dated 9/98 for oil combustion and 7/01 for wood combustion.
5. VOC emissions rates are based on AP-42 emission factors dated 9/98 for oil combustion and 7/01 for wood combustion. VOC lb/hr emission rate restrictions do not include VOC emissions from the drying of hardwood veneer. Columbia Forest Products will be subject to a separate annual VOC emission restriction for the drying of hardwood veneer.

6. Visible emissions during periods of oil firing shall not exceed 20% opacity on a 6-minute block average, except for 2 six-minute block averages in a 3-hour period.
7. Visible emissions during periods of wood firing shall not exceed 30% opacity on a 6-minute block average, except for 2 six-minute block averages in a 3-hour period.

D. Veneer Dryers

Along with the Wood and #2 fuel firing Veneer Dryer #1, Columbia Forest Products is also currently licensed to operate an indirect contact veneer drying kiln (designated Veneer Dryer #2). Veneer Dryer #2 utilizes steam supplied from the facility's boiler units to dry hardwood veneer. Columbia Forest Products plans to install a second new indirect contact veneer drying kiln (designated Veneer Dryer #3). Veneer Dryer #3 is manufactured by Babcock and utilizes steam heat exchange coils (radiators) to heat the interior of the dryer. Columbia Forest Products currently dries wood in five to six week drying cycle periods, with 10 drying cycles periods occurring in a 12-month period.

Columbia Forest Products expects to exclusively dry hard woods in Veneer Dryers #1, #2 and #3, which will include oak, maple, birch and possibly poplar. VOCs are the criteria pollutant associated with the drying of wood. Columbia Forest Products shall be restricted to the following VOC emissions from the drying of wood:

Equipment	VOC Emissions	
	Pounds per hour (lb/hr)	Tons per year (ton/yr)
Veneer Dryer #1	3	13.1
Veneer Dryer #2	1	4.4
Veneer Dryer #3	3	13.1

Due to lack of existing data for emissions from hardwood species, VOC emissions calculations are based on emissions testing performed on the Veneer Dryers #1 and #2 at the Columbia Forest Product's Presque Isle facility in 1995. Columbia Forest Products has proposed an emission factor for the drying of hardwood veneer at their Presque Isle facility of 0.0234 pounds of VOC per 1,000 square feet of veneer dried (lb/ft²) based on the above mentioned emission testing.

In order to demonstrate compliance with the VOC emissions limits, Columbia forest products shall maintain VOC emission records for the facility's veneer drying units. VOC emission calculations shall be based on the above mentioned emission factor for the drying of hardwood veneer and the square feet of veneer dried. The records shall be maintained on a drying cycle and twelve-month rolling total basis.

E. Boilers #1 and #2

Columbia Forest Products has requested to revise the wood fuel cap for Boilers #1 and #2 to allow the two boilers together to burn 10,000 tons of wood per year. Boilers #1 and #2 each have a maximum design heat input capacity of 15.0 MMBtu/hr firing wood at a moisture content of approximately 50% by weight.

A summary of the BACT analysis for Boiler #1 and #2 is as follows:

1. PM, PM₁₀, SO₂, NO_x, CO and VOC emissions rates are based on AP-42 emission factors dated 7/01 for wood combustion.
2. Visible emissions shall not exceed 30% opacity on a 6-minute block average, except for 2 six-minute block averages in a 3-hour period.

F. Process Cyclones

Columbia Forest Products utilizes three cyclones in their wood fuel transfer system to control wood dust. Wood waste and dust-laden air are blown to each cyclone to separate the wood particles from the air. Cyclones #1 and #2 are located on the wood fuel storage building. Wood waste and bark generated from the debarking and initial processing of the incoming wood is blown to Cyclones #1 and #2. The wood waste and wood dust drops onto a conveyor system and is delivered into the Boilers #1, #2 and #3 fuel bin.

Cyclone #3 sits atop the waste sawdust silo. This silo is the fuel source for the Energex combustion system of Veneer Dryer #1. Wood waste generated from the production end of the veneer process is hogged and blown to Cyclone #1, where the wood waste and wood dust drops into the waste sawdust silo.

Columbia Forest Products shall maintain a log of the condition of the cyclones and dust conveying equipment. Columbia Forest Products shall inspect operations of the cyclones and the dust conveying equipment once per month and record findings, and any repairs.

Visible emissions from any cyclone shall not exceed an opacity of 10% on a 6-minute block average basis, except for no more than 1 six-minute block average in a 1-hour period.

G. VOC RACT

Columbia Forest Products does not emit VOCs from non-exempt equipment greater than 40 tons per calendar year and is therefore not subject to Chapter 134 (Reasonable Available Control Technology for Facilities that Emit Volatile Organic Compounds) of the Department's regulations.

H. Annual Emission Restrictions

Columbia Forest Products shall be assessed fees based on the following annual emissions, based on a 12 month rolling total:

- Columbia Forest Products shall be restricted to firing no more than 15,000 tons of wood in Boiler #3, 10,000 Tons of wood in Boilers #1 and #2 together and 8760 tons of wood in the Veneer Dryer #1, all based on a twelve-month rolling total.
- Columbia Forest Products shall be restricted to firing no more than 1,250,000 gallons of #2 fuel oil in Boiler #3 and no more than 250,000 gallons per year of #2 fuel oil in Veneer Dryer #1, both based on a twelve-month rolling total.

Total Allowable Annual Emission for the Facility
(used to calculate the annual license fee)

<u>Pollutant</u>	<u>Emissions in Tons/Year</u>							
	<u>Blrs #1 & #2</u>	<u>Blr #3</u>		<u>Energex</u>		<u>Veneer Dryers</u>	<u>Glue</u>	<u>Total</u>
Fuel combusted	wood	Wood	Oil	wood	oil	-	-	-
PM	24.3	11.5	8.8	6.7	1.4	-	-	52.7
PM ₁₀	13.5	7.0	8.8	3.9	1.4	-	-	34.6
SO ₂	1.1	1.7	43.8	1.0	9.8	-	-	57.4
NO _x	22.1	33.1	1.8	19.3	2.5	-	-	78.8
CO	27.0	3.7	3.1	23.7	0.6	-	-	58.1
VOC	1.7	2.6	0.2	2.4	0.1	30.6	2.0	39.6

III.AMBIENT AIR QUALITY ANALYSIS

A. Overview

A combination of screening and refined modeling was performed to show that emissions from Columbia Forest Products, in conjunction with other sources, would not cause or contribute to violations of Maine Ambient Air Quality Standards (MAAQS) for Sulfur Dioxide (SO₂), Particulate Matter (PM₁₀), Nitrogen Dioxide (NO₂), and Carbon Monoxide (CO) and does not exceed maximum allowable Class I or Class II increments for SO₂, PM₁₀, and NO₂.

It was determined by MEDEP-BAQ that Columbia Forest Products consumes PM₁₀ and NO₂ increment, therefore Class II PM₁₀, and NO₂ increment analyses were performed. It was determined that Columbia Forest Products does not consume SO₂ increment, therefore a Class II SO₂ increment analysis was not performed.

Columbia Forest Products is a minor source undergoing a minor modification located approximately 185 kilometers from the nearest Class I easement area. MEDEP-BAQ has determined that Columbia Forest Products is not likely to affect ambient Class I increment, therefore, a Class I analysis was not performed.

B. Model Inputs

The SCREEN3 model was used in all terrain to determine the worst-case operating load and the SO₂, PM₁₀, NO₂, and CO significant impact areas.

The ISC-PRIME model was used in refined simple terrain mode to address standards in all areas, including the cavity region. In addition, the COMPLEX-1 model in the VALLEY mode (CI-VM) was used to evaluate impacts in intermediate and complex terrain, i.e., areas where terrain elevations exceed the proposed stack-top elevations.

All modeling was performed in accordance with all applicable requirements of the Maine Department of Environmental Protection, Bureau of Air Quality (MEDEP-BAQ) and the United States Environmental Protection Agency (USEPA).

A valid 5-year hourly meteorological off-site database was used for the refined modeling. The wind data was collected at a height of 10.00 meters at the Caribou National Weather Service (NWS) site during the 5-year period 1985 to 1989. Missing data were interpolated or coded as missing. Surface data collected at Loring Air Force Base was substituted for missing surface data. Hourly cloud cover, ceiling height and surface wind speed data also from Caribou NWS were used to calculate stability. Hourly mixing heights were derived from surface and upper air data from the Caribou NWS site.

Four operating scenarios to be included in Columbia Forest Products' modeling analysis are:

- A. Stacks 1, 2, B3 (oil), and V1 (oil)
- B. Stacks 1, 2, B3 (oil), and V1 (wood)
- C. Stacks 1, 2, B3 (wood), and V1 (wood)
- D. Stacks 1, 2, B3 (wood), and V1 (oil)

Where;

- Boilers 1 and 2 vent out of Stacks 1 and 2 respectively and burn wood exclusively.
- Boiler 3 is proposed to vent out of Stack B3 and will be capable of burning either oil or wood.
- The veneer dryer is capable of burning either oil or wood and was vented out of Stacks 3 and 4 during the baseline years and is proposed to vent out of Stack V1.

Stack parameters used in the modeling for Columbia Forest Products are listed in Table IV-1. All geographic locations for stacks and receptors are based on the NAD27 projection. The modeling analyses accounted for the potential of building wake effects on emissions from all stacks below formula GEP stack height.

TABLE IV-1. Stack Parameters

H. Facility/stack	Stack Base Elevation (m)	Stack Height (m)	GEP Stack Ht. (m)	Stack Diameter (m)	UTM E (km)	UTM N (km)
CURRENT/PROPOSED						
Columbia Forest Products						
Stack 1 (wood)	161.54	19.81	32.20	0.86	573.421	5172.828
Stack 2 (wood)	161.54	19.81	32.20	0.86	573.426	5172.831
Stack B3 (oil)	161.54	19.81	32.20	0.76	573.418	5172.859
Stack B3 (wood)	161.54	19.81	32.20	0.76	573.418	5172.859
Stack V1 (oil)	161.54	19.81	32.20	0.61	573.461	5172.775
Stack V1 (wood)	161.54	19.81	32.20	0.61	573.461	5172.775
McCain's Tatermeal						
Dryer 1	144.78	26.52	31.24	1.52	573.470	5171.320
Dryer 2	144.78	26.52	31.24	1.52	573.465	5171.319
Dryer 3	144.78	35.05	31.24	1.89	573.455	5171.317
CURRENT ACTUALS (2000 & 2001)						
Columbia Forest Products						
Stack 1 (wood)	161.54	19.81	32.20	0.86	573.421	5172.828
Stack 2 (wood)	161.54	19.81	32.20	0.86	573.426	5172.831
Stack V1 (oil)	161.54	19.81	32.20	0.61	573.461	5172.775
Stack V1 (wood)	161.54	19.81	32.20	0.61	573.461	5172.775
McCain's Tatermeal						
Dryer 3	144.78	35.05	31.24	1.89	573.455	5171.317
I. BASELINE 1977 AND 1987						
Columbia Forest Products						
Stack 1 (wood)	161.54	19.81	32.20	0.86	573.421	5172.828
Stack 2 (wood)	161.54	19.81	32.20	0.86	573.426	5172.831
Stack 3 (wood and oil)	161.54	7.90	32.20	0.79	573.427	5172.763
Stack 4 (wood and oil)	161.54	7.90	32.20	0.49	573.428	5172.761

Emission parameters for Columbia Forest Products used in demonstrating compliance with MAAQS are listed in Table IV-2. For the purpose of determining NO₂ and PM₁₀ impacts, all NO_x and PM emissions were conservatively assumed to convert to NO₂ and PM₁₀ respectively, except as noted in Table IV-2.

TABLE IV-2. Emission Parameters

J.	Facility/stack	Operating Scenario	SO ₂ (g/s)	PM ₁₀ (g/s)	NO ₂ (g/s)	CO (g/s)	Temp (°K)	Stack Vel. (m/s)
CURRENT/PROPOSED								
Columbia Forest Products								
Stack 1 (wood)	Maximum	0.05	0.57	0.93	1.13	560.93	4.34	
Stack 2 (wood)	Maximum	0.05	0.57	0.93	1.13	560.93	4.34	
Stack B3 (oil)	Maximum	1.86	0.37*	0.52	0.13	560.93	9.23	
Stack B3 (wood)	Maximum	0.08	0.30	1.48	0.17	560.93	8.89	
Stack V1 (oil)	Maximum	1.06	0.15*	0.27	0.08	435.90	37.35	
Stack V1 (wood)	Maximum	0.09	0.34	1.67	2.04	435.90	37.35	
McCain Tatermeal								
Dryer 1	Maximum	2.98	2.11*	0.71	0.13	314.50	7.86	
Dryer 2	Maximum	2.98	2.11*	0.71	0.13	314.50	7.86	
Dryer 3	Maximum	5.94	1.79*	1.42	0.20	351.50	8.48	
CURRENT ACTUALS (2000 & 2001)								
Columbia Forest Products								
Stack 1 (wood)	Actual		0.14	0.22		560.93	1.05	
Stack 2 (wood)	Actual		0.14	0.22		560.93	1.05	
Stack V1 (oil)	Actual		0.02*	0.03		435.90	37.35	
Stack V1 (wood)	Actual		0.12	0.60		435.90	37.35	
McCain's Tatermeal								
Dryer 1	Maximum			0.64		314.50	7.86	
Dryer 2	Maximum			0.64		314.50	7.86	
Dryer 3	Maximum		1.61*	1.28		351.50	8.48	
BASELINE 1987								
Columbia Forest Products								
Stack 1	Actual			0.26		560.93	2.37	
Stack 2	Actual			0.26		560.93	2.37	
Stack 3	Actual			0.04		350.00	0.37	
Stack 4	Actual			0.03		350.00	0.69	
BASELINE 1977								
Columbia Forest Products								
Stack 1	Actual		0.23			560.93	1.72	
Stack 2	Actual		0.23			560.93	1.72	
Stack 3	Actual		0.03*			350.00	0.71	
Stack 4	Actual		0.02*			350.00	1.30	

Key: Shaded = not modeled, * = PM conservatively assumed to be PM₁₀

C. Applicant's modeled impacts.

Columbia Forest Products' veneer dryer does not operate at multiple operating levels, therefore the veneer dryer does not require modeling for load case scenarios. However, the dryer was modeled using SCREEN3 for SO₂, PM₁₀, NO₂, and CO significant impact areas. SCREEN3 modeling analyses were performed for Columbia Forest Products' three boilers for the maximum, typical (75% of maximum operating case emission and stack velocity), and minimum (50% of maximum operating case emission and stack velocity) operating load cases for Columbia Forest Products alone. The highest impact for each stack, independent of receptor location, was added together for each scenario to conservatively determine facility-wide impacts. It was demonstrated that the maximum operating load case for the boilers would result in maximum impacts in simple, intermediate, and complex terrain thus, the typical and minimum load cases were not examined further.

ISC-PRIME refined modeling (in simple terrain mode), using five years of meteorological data, and CI-VM screening modeling was performed for Columbia Forest Products alone. For each pollutant-averaging period, the greatest impact from the different operating scenarios is reported and the operating scenario which produced the maximum is identified. The model results for Columbia Forest Products alone in simple, intermediate and complex terrain are shown in Tables IV-3 and IV-4, respectively. It was demonstrated that Columbia Forest Products would have no significant impacts for CO in either simple or complex terrain; therefore, no further analysis was required for these pollutant/terrain combinations. Pollutants that exceed their significance levels are indicated in bold type.

TABLE IV-3 Maximum Impacts from Columbia Forest Products Alone in Simple Terrain

Pollutant	Averaging Period	Operating Scenario	ISC-PRIME Max (µg/m ³)	Receptor UTM-E (km)	Receptor UTM-N (km)	Receptor Elevation (m)	MAAQS Class II Significance (µg/m ³)
SO ₂	3-hour	A	246.06	573.171	5173.278	179.83	25
	24-hour	A	127.99	573.460	5172.652	161.54	5
	Annual	A	25.61	573.470	5172.762	161.54	1
PM ₁₀	24-hour	B	109.10	573.460	5172.652	161.54	5
	Annual	B	16.47	573.470	5172.762	161.54	1
NO ₂	Annual	C	52.78	573.470	5172.762	161.54	1
CO	1-hour	C	579.22	573.500	5172.662	161.54	2,000
	8-hour	C	361.09	573.480	5172.652	161.54	500

**TABLE IV-4 Maximum Impacts from Columbia Forest Products Alone
in Intermediate and Complex Terrain**

Pollutant	Averaging Period	Operating Scenario	CI-VM Max ($\mu\text{g}/\text{m}^3$)	Receptor UTM-E (km)	Receptor UTM-N (km)	Receptor Elevation (m)	MAAQS Class II Significance ($\mu\text{g}/\text{m}^3$)
SO ₂	3-hour	A	85.18	572.458	5173.400	204.22	25
	24-hour	A	23.66	572.458	5173.400	204.22	5
	Annual	A	7.57	572.458	5173.400	204.22	1
PM ₁₀	24-hour	B	15.53	572.493	5173.381	201.17	5
	Annual	B	4.97	572.493	5173.381	201.17	1
NO ₂	Annual	C	12.71	572.458	5173.400	204.22	1
CO	1-hour	C	135.96	572.458	5173.400	204.22	2,000
	8-hour	C	95.17	572.458	5173.400	204.22	500

D. Combined Source Modeling

Because modeled impacts from Columbia Forest Products were greater than significance levels for all SO₂, PM₁₀, and NO₂ averaging periods in simple, intermediate and complex terrain, other sources not explicitly included in the modeling analysis must be included by using representative background concentrations for the area. Background concentrations used were based on conservative Northern Maine rural background monitoring data from data collected for SO₂ from Dedham (Bald Mountain site), for PM₁₀ from the (Loring Commerce Centre site), and for data collected for NO₂ in the Portland area (PEOPL Site). These background values are listed in Table IV-5.

TABLE IV-5. Background Concentrations ($\mu\text{g}/\text{m}^3$)

Pollutant	Averaging Period	Background
SO ₂	3-hour	52
	24-hour	29
	Annual	5
PM ₁₀	24-hour	32
	Annual	10
NO ₂	Annual	11

MEDEP-BAQ examined other sources whose impacts would potentially be significant in or near Columbia Forest Products' significant impact area. Due to the applicant's location, extent of the significant impact area and nearby source emissions, MEDEP-BAQ has determined that McCain's Tatermeal plant in Presque Isle would be required for combined source modeling.

Tables IV-6 and IV-7 summarize the maximum ISC-PRIME and CI-VM combined source impacts respectively. The predicted impacts were added to conservative background concentrations to demonstrate compliance with MAAQS. All combined source SO₂, PM₁₀, and NO₂ averaging period impacts were below their respective MAAQS.

TABLE IV-6 Maximum Combined Source Impacts in Simple Terrain

Pollutant	Averaging Period	CFP Operating Scenario	ISC-PRIME Max (µg/m ³)	Receptor UTM-E (km)	Receptor UTM-N (km)	Receptor Elevation (m)	Back-ground (µg/m ³)	Max Total Impact (µg/m ³)	MAAQS (µg/m ³)
SO ₂	3-hour	*	311.66	573.871	5171.578	158.50	52	363.66	1150
	24-hour	A	127.99	573.460	5172.652	161.54	29	156.99	230
	Annual	A	30.95	573.460	5172.782	161.54	5	35.95	57
PM ₁₀	24-hour	B	109.10	573.460	5172.652	161.54	32	141.10	150
	Annual	B	22.68	573.471	5171.278	140.21	10	32.68	40
NO ₂	Annual	C	53.96	573.470	5172.762	161.54	11	64.96	100

Key: * = the maximum occurred near Tatermeal with no contribution from any Columbia Forest Products operating scenario.

TABLE IV-7 Maximum Combined Source Impacts in Intermediate and Complex Terrain

Pollutant	Averaging Period	CFP Operating Scenario	CI-VM Max (µg/m ³)	Receptor UTM-E (km)	Receptor UTM-N (km)	Receptor Elevation (m)	Back-ground (µg/m ³)	Max Total Impact (µg/m ³)	MAAQS (µg/m ³)
SO ₂	3-hour	*	125.64	572.420	5173.438	207.26	52	177.64	1150
	24-hour	*	34.90	572.420	5173.438	207.26	29	63.90	230
	Annual	*	11.17	572.420	5173.438	207.26	5	16.17	57
PM ₁₀	24-hour	*	18.21	572.458	5173.400	204.22	32	50.21	150
	Annual	*	5.83	572.458	5173.400	204.22	10	15.83	40
NO ₂	Annual	C	12.71	572.458	5173.400	204.22	11	23.71	100

Key: * = the maximum impact occurred with no contribution from any Columbia Forest Products operating scenario.

E. Class II Increment

A Class II increment analyses requires the inclusion of Area Source and Mobile Source NO_x emissions as well as a combined source modeling analysis for increment in both simple and complex terrain. The following is a summary of the three parts of the Class II increment analysis:

1. Area Source Growth

Population growth in Aroostook County can be used as a surrogate factor for the growth in the emissions from residential combustion sources. Information from the U.S. Census Bureau estimates that the population in Aroostook County was 87,050 in 1990 and 75,836 in 1999 for a net decrease of 12.9 % between 1990 and 1999. Because of decrease in area source emissions, a detailed analysis of area source emissions of NO_x was not required.

2. Mobile Source Growth

Growth in vehicle miles traveled (VMT) can be used to determine the growth in NO_x emissions in the impact area of the proposed source. MEDEP-BAQ performed motor vehicle emission model runs for the period of 1987 to 1998. A VMT growth for this same period of 9% for Aroostook County combined with known controls in mobile source NO_x emissions causes insignificant growth of NO_x in this time period. Hence, further detailed analysis of mobile NO_x emissions are not needed.

3. Point Sources

ISC-PRIME refined model in simple terrain was used to demonstrate that PM₁₀ and NO₂ Class II increment standards would not be exceeded by Columbia Forest Products alone or in combination with other nearby sources.

Due to Columbia Forest Products' location, extent of the significant impact area and nearby source's emissions, it has been determined that McCain's Tatermeal plant would be required for combined source increment modeling. It was determined that Tatermeal was increment consuming for PM₁₀ emissions from Stack 3 only, while all three stacks consumed NO₂ increment. Tatermeal's current actual emissions were included in the increment analysis with no credit taken for either PM₁₀ or NO₂ baseline emissions.

Since the combined source impacts from maximum license allowed emissions in intermediate and complex terrain are below increment standards, an increment analysis was not performed for the intermediate and complex terrain. Table IV-8 summarizes the maximum ISC-PRIME Class II increments.

TABLE IV-8 Maximum Combined Source Class II Increment in Simple Terrain

Pollutant	Averaging Period	Operating Scenario	ISC-PRIME Increment ($\mu\text{g}/\text{m}^3$)	Receptor UTM-E (km)	Receptor UTM-N (km)	Receptor Elevation (m)	Class II Increment ($\mu\text{g}/\text{m}^3$)
PM ₁₀	24-hour	B	6.58	573.480	5172.872	161.54	30
	Annual	B	0.77	573.371	5173.478	179.83	17
NO ₂	Annual	C	8.42	573.471	5171.278	140.21	25

MEDEP-BAQ determined that insignificant NO₂ increment has been consumed by mobile and area sources in Aroostook County. Thus, only point sources need to be considered in the NO₂ increment analysis. All combined source PM₁₀, and NO₂ impacts were below Class II increment standards.

F. Class I Increment

Columbia Forest Products is a minor source undergoing a minor modification located approximately 185 kilometers from the nearest Class I easement area. MEDEP-BAQ has determined that Columbia Forest Products is not likely to affect ambient Class I increment therefore, a Class I analysis was not performed.

G. Summary

In summary, it has been demonstrated that Columbia Forest Products' in its proposed configuration will not cause or contribute to a violation of any SO₂, PM₁₀, NO₂, and CO MAAQS or to Class I or Class II increment standards.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-353-71-G-A subject to the conditions found in Air Emission License A-353-71-F-R and in the following conditions:

The following condition shall replace condition (16) paragraph B. and paragraph C. in Air Emission License A-353-71-F-R:

B. Boilers #1 and #2 shall not exceed firing more than 10,000 tons per year of wood at 50% moisture. To demonstrate compliance with the fuel cap, Columbia Forest Products shall maintain a fuel use record for the wood fired in the two boilers. The fuel use record shall be maintained on a monthly and a twelve-month rolling total.

C. Emissions from Boilers #1 and #2 shall not exceed the following:

Equipment		PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Boiler #1	lb/MMBtu	0.54	-	-	-	-	-
	lb/hr	8.1	4.5	0.4	7.4	9.0	0.6
Boiler #2	lb/MMBtu	0.54	-	-	-	-	-
	lb/hr	8.1	4.5	0.4	7.4	9.0	0.6

The following condition shall replace condition (17) paragraph B. and paragraph C. in Air Emission License A-353-71-F-R:

B. Total annual fuel use in the Energex Combustion Unit in Veneer Dryer #1 shall not exceed 8,769 tons of wood per year based on a twelve-month rolling total and total annual fuel use in the #2 fuel firing burners (Heaters #1, #2 and #3) shall not exceed 250,000 gallons of #2 fuel oil per year based on a twelve-month rolling total. Columbia Forest Products shall fire #2 fuel oil with a sulfur content no greater than 0.35% sulfur by weight. To demonstrate compliance with the fuel caps and sulfur content restrictions, Columbia Forest Products shall maintain fuel use records that shall include purchase receipts for the oil that certify sulfur content. The fuel use record shall be maintained on a monthly and a twelve-month rolling total.

C. Emissions from fuel firing in the Energex Combustion Unit in Veneer Dryer #1 shall not exceed the following:

Equipment		PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Wood Firing	lb/MMBtu	0.17	-	-	-	-	-
	lb/hr	4.6	2.7	0.7	13.2	16.2	1.6
Heaters #1, #2 and #3	lb/MMBtu	0.08	-	-	-	-	-
	lb/hr	1.2	1.2	8.4	2.1	0.5	0.1

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The following condition shall replace condition (21) in Air Emission License A-353-71-F-R:

(21) Veneer Dryers

A. Columbia Forest Products shall be restricted to the following VOC emissions:

Equipment	VOC Emissions	
	Pounds per hour (lb/hr)	Tons per year (ton/yr)
Veneer Dryer #1	3	13.1
Veneer Dryer #2	1	4.4
Veneer Dryer #3	3	13.1

B. Columbia forest products shall maintain VOC emission records for the facility's veneer drying units. VOC emission calculations shall be based on an emission factor of 0.0234 pounds of VOC per 1,000 square feet and the number of square feet of veneer dried. The Department may approve the use of an alternative emission factor if more testing leads to the generation of a more appropriate emission factor. The records shall be maintained on a drying cycle and twelve-month rolling total basis.

The following are new conditions to Air Emissions License A-353-71-F-N

(23) Boiler #3

- A. Capacity shall not exceed 24 MMBtu/hr during periods of wood firing and 29.44 MMBtu/hr during periods of oil firing.
- B. Wood fuel use shall not exceed 15,000 tons of wood per year based on a twelve-month rolling total.
- C. #2 fuel oil use shall not exceed 1,250,000 gallons of #2 fuel oil per year based on a twelve-month rolling total. #2 fuel oil fired in Boiler #3 shall have a sulfur content no greater than 0.35% sulfur by weight.
- D. To demonstrate compliance with the fuel caps and the #2 fuel oil sulfur limit, Columbia Forest Products shall maintain a fuel use record for Boiler #3 that shall include purchase receipts for the #2 fuel oil certifying sulfur content. The fuel use record shall be maintained on a monthly and a twelve-month rolling total.

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E. Emissions shall not exceed the following:

Equipment		PM	PM₁₀	SO₂	NO_x	CO	VOC
Boiler #3 (Firing Wood)	lb/MMBtu	0.17	-	-	-	-	-
	lb/hr	4.1	2.5	0.6	11.8	1.3	0.9
Boiler #3 (Firing Oil)	lb/MMBtu	0.1	-	-	-	-	-
	lb/hr	2.9	2.9	14.7	4.2	1.1	0.1

F. Visible emissions.

1. Visible emissions during periods of oil combustion shall not exceed 20% opacity on a 6-minute block average, except for no more than 2 six-minute block averages in a 3-hour period.
2. Visible emissions during periods of wood combustion or periods of combusting wood and oil in combination, shall not exceed 20% opacity on a 6-minute block average, except for no more than 2 six-minute block averages in a 3-hour period.

G. Columbia Forest Products shall comply with the reporting and record keeping requirements required by 40 CFR Part 60.48c.

(24) **New Source Performance Standards**

Facility shall comply with the requirements of Federal New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc for Boiler #3.

Columbia Forest Products is required to send a semi-annual report to the EPA for a Dc boiler. Columbia Forest Products shall mail the semi-annual report to the following address:

US EPA Region I
Attn: Air Compliance Clerk
One Congress Street
Suite 1100 (MC SEA)
Boston, MA 02114-2023

(25) **Cyclones**

A. Columbia Forest Products shall operate and maintain the cyclones in a manner that minimizes emissions from the cyclones.

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- B. Visible emissions from any cyclone shall not exceed an opacity of 10% on a 6-minute block average basis, except for no more than 1 six-minute block average in a 1-hour period.
 - C. Columbia Forest Products shall maintain a log of the condition of the cyclones and dust conveying equipment.
 - D. Columbia Forest Products shall inspect operations of the cyclones and the dust conveying equipment once per month and record findings and any repairs in the cyclone log.
- (26) Columbia Forest Products shall notify the Department within 48 hours and submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component causes a violation of any emission standard (Title 38 MRSA §605-C).
- (26) Annual Emission Statement

In accordance with MEDEP Chapter 137, the licensee shall annually report to the Department by September 1, the information necessary to accurately update the State's emission inventory by means of:

- 1) A computer program and accompanying instructions supplied by the Department;
or
- 2) A written emission statement containing the information required in MEDEP Chapter 137.

Reports and questions should be directed to:

Attn: Criteria Emission Inventory Coordinator
Maine DEP
Bureau of Air Quality
17 State House Station
Augusta, ME 04333-0017

Phone: (207) 287-2437

- (27) Columbia Forest Products shall pay the annual air emission license fee within 30 days of December 31 of each year. Pursuant to 38 MRSA 353-A, failure to pay this annual fee in the stated timeframe is sufficient grounds for the revocation of the license under 38 MRSA 341-D, Subsection 3.

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(28) This amendment shall expire concurrently with Air Emission License
A-353-71-F-R.

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2003.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
DAWN R. GALLAGHER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: **July 7, 2002**

Date of application acceptance: **October 22, 2002**

Date filed with the Board of Environmental Protection: _____

This Order prepared by, Peter G. Carleton, Bureau of Air Quality